

CLAIMS

What is claimed is:

1. A method for providing a halftoned image comprising the step of:
scaling the halftoned image by performing pel repetition utilizing an error diffusion algorithm such that artifacts are minimized.

2. The method of claim 1 wherein $n \times m$ pel blocks of an image are scaled to $n+1 \times m$ pel blocks by inserting single pels in each block at locations distributed through the block according to the error-diffusion algorithm, with values chosen such that the average intensity of the block is substantially unchanged.

3. The method of claim 1 wherein no pel from a $n \times m$ pel block is shifted more than one position from its neighboring pels in the scaled $(n+1 \times m)$ block.

4. The method of claim 3 wherein the $n \times m$ pel block is shifted by a shifting matrix.

5. The method of claim 2 wherein a threshold matrix is utilized to maintain the average intensity of a block.

6. A printing system for providing a halftoned image comprising:
a storage device for providing a continuous tone (contone) image;

a spooler for receiving the contone image and converting the image to a halftoned image;

a scaler for scaling the halftoned image by performing pel repetition utilizing a error diffusion algorithm such that artifacts are minimized; and

a printer for receiving the halftoned image and printing the image.

7. The system of claim 6 wherein the scaler is within the printer.

8. The system of claim 6 wherein $n \times m$ pel blocks of an image are scaled to $n+1 \times m$ pel blocks by inserting single pels in each block at locations distributed through the block according to the error-diffusion algorithm, with values chosen such that the average intensity of the block is substantially unchanged.

9. The system of claim 6 wherein no pel from a $n \times m$ pel block is shifted more than one position from its neighboring pels in the scaled $(n+1 \times m)$ block.

10. The system of claim 9 wherein the $n \times m$ pel block is shifted by a shifting matrix.

11. The system of claim 8 wherein a threshold matrix is utilized to maintain the average intensity of a block.

12. A computer readable medium containing program instructions for providing a halftoned image, the program instructions for:

scaling the halftoned image by performing pel repetition utilizing an error diffusion algorithm such that artifacts are minimized.

13. The computer readable medium of claim 12 wherein $n \times m$ pel blocks of an image are scaled to $n+1 \times m$ pel blocks by inserting single pels in each block at locations distributed through the block according to the error-diffusion algorithm, with values chosen such that the average intensity of the block is substantially unchanged.

14. The computer readable medium of claim 12 wherein no pel from a $n \times m$ pel block is shifted more than one position from its neighboring pels in the scaled $(n+1 \times m)$ block.

15. The computer readable medium of claim 14 wherein the $n \times m$ pel block is shifted by a shifting matrix.

16. The computer readable medium of claim 13 wherein a threshold matrix is utilized to maintain the average intensity of a block.